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External Reserves and Economic Growth in Nigeria

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ABSTRACT

The study examined the effect of external reserves on economic growth in Nigeria. The study disaggregated external reserve variables into external reserve stock, capital account balance, current account balance and cost of holding reserves. Economic growth was captured as the Gross Domestic Product growth rate. The data were generated from the CBN Statistical Bulletin and World Bank Group World Development Indicators, for a period of 35 years spanning 1987 to 2021. The regression model for the study was analysed using the Autoregressive Distributive Lag, which was found as most suitable using the Augmented Dicker Fuller Unit root tests. The results showed that there is no significant long run relationship between external reserves and economic growth in Nigeria and that the model explained about 71% of the short run factors that impact economic growth within the deregulated Nigeria economy. It was also discovered that economic growth has an endogenous effect on the model of external reserve strategies for economic growth. The regression results for the specific objectives and hypotheses testing revealed that: (1) external reserve stock has a significant oscillatory short run effects on economic growth in Nigeria which was positive at lag 2 period and then negative in subsequent lag 3 year; (2) capital account balance has a positive but no significant short run effect on economic growth in Nigeria; (3) Current account balance has significant and short run positive effect on economic growth in the initial period but no effect in subsequent years; and (4) Cost of reserve has significant and positive short-run effect on economic growth in Nigeria. The study concluded that external reserves have not been an effective driver of Nigerian economic growth within the deregulated economy era. Based on the findings of the study it was recommended among others that government should increase her external reserve stock to enhance the growth of Nigerian economy, by increasing the export through diversification and exploration of new markets for Nigerian export products.

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KEYWORDS: *external reserves; economic growth; Nigeria*

1. INTRODUCTION

External reserves constitute part of a nation's wealth. Lack of it constitutes a problem to most nations and can limit the ability of any country to make payments in foreign currency denomination. External reserve which is also known as international reserves consists of foreign currencies, foreign deposit and bonds held by the Central Bank and monetary authorities of a nation (Umeora, 2013). They can be used for financing and regulating payment imbalances through exchange market intervention. The term is made up of foreign currencies, gold reserve, Special Drawing Rights (SDRS) and IMF reserve position. According to Ikeora, (2007) foreign reserves held by individual banks, government agencies and corporate bodies do not form part of a country's international reserve as it is not all the external assets held by a nation that is useful and liquid during economic crisis. Some studies have argued that accumulation of external reserves has been instrumental to economic growth of a nation (Rodirik, 2006, Adam & Leonce 2007). Such reserves are used to finance transaction needs, foreign exchange intervention and enhancement of credit worthiness. They are also used to create buffer against external shocks and the credibility of

monetary policy (Ogwumike, 2001). Abeng (2007), Umeora (2013) and Rodirik (2006) are of the opinion that accumulation of external reserves has opportunity cost which arises from low returns on reserve currency depreciation, foregone gains from investment and social expenditure.

Observably, Nigeria over the years has been experiencing fluctuation in its external reserve. The culture of holding high reserve in Nigeria began in 1999 in order to reduce fiscal indiscipline which are characterized by military regime which lead to frivolous spending. This led to increase in the nation's reserves from $4. 98 billion in 1999 to $51.33 billion in 2007, CBN (2017). The reserve further rose to $53billion in 2008 before falling to $32.33bn in 2009 which later rose slightly to $32.64 billion in 2011. Though increase to $32.6 and $32.64 billion in 2012 and 2013 respectively. Nigeria experienced fall in its external reserve to $34.2 billion in 2014, $28.28billion in 2015 and $40.5b in 2017, $42.84billion in 2018, decreased to $38.34billion in 2019, $35.36billion in 2020 before increasing to $40.521billion in 2021 (CBN (2021).The Gross Domestic Product (GDP) which is one of the ways of measuring a country's economy plays an important role in enhancing the standard of living of the citizenry. In 1987, Nigeria's GDP was $52.6billion and witnessed a decrease between 1988 and 1989, increased by $54.04billion in 1990 witnessed another decrease between 1991 and 1996. Increased in 1997 to $54.46billion and reached an all-time high of $236.10billion in 2006. Nigeria's GDP rose by 6.31 percent in 2014.The increase continued in an upward trend till 2019 with the GDP rising to $448.12billion in 2020 and $407billion in 2021 respectively CBN, (2021).

External reserves remain one of the most important assets that are managed and controlled by the monetary authority of a nation for economic prosperity. The recent dwindling trends in the external reserve stock in Nigeria cannot theoretically cushion balance of payment disequilibrium. Over the years, Nigeria's external reserves have been experiencing fluctuations. For instance the reserve in 2015 was 29bn USD and fell to 26bn SDD in 2016 and continual the annual rise and fall from then till 2021. This trend is capable of distorting effective national planning and fiscal management. Therefore, if our external reserves continue to plummet, a time will come when nothing will be left to cover three months of import which is the adjudged minimum for foreign reserve sufficiency. Nigeria is a mono-cultural economy where more than 70 percent of growth revenue are derivable from a single commodity oil. Therefore, if there is a vicissitude in the international price of oil, the Nigerian economy will be seriously affected. This will affect the exchange rate, the rate of inflation, GDP and unemployment. This chain reaction would affect the country's macro-economic stability. This study will therefore examine how fluctuations in the quantum of external reserves have affected Nigerians economic growth positively or negatively in the period covered by this study.

2. REVIEW OF RELATED LITERATURE

Reserve is an asset, either in monetary or physical terms, kept for use at later days. Reserves are made to cater for shortfalls in economic activities. External reserves, which is also known as foreign reserve is a way countries set aside funds or assets into investments or foreign banks. International Monetary Fund (2007) defined External reserves as consisting of official public sector foreign assets that are readily available to and controlled by the monetary authorities. Also, it can be said to be assets held on reserve by a monetary authority in foreign currencies. These reserves are used to back liabilities and influence monetary policy (Marshal, 2020). In the context of the monetary authorities in Nigeria, External Reserves "are portions of foreign exchange receipts saved by the monetary authorities for the purpose of enhancing the creditworthiness of the economy, protecting the international value of the domestic currency, and financing temporary shocks in the balance of payments" (CBN, 2019). Reserves and related items are the net change in a country's holdings of international reserves resulting from transactions on the current, capital, and financial accounts. Reserve assets are those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, and include holdings of monetary gold, special drawing rights (SDRs), reserve position in the International Monetary Fund (IMF), and other reserve assets. Other items that also form the reserves of a nation are net credit and loans from the IMF (excluding reserve position) and total exceptional financing. Economic growth is one of the most important indicators of an economy's health. It is the increase in the market value of the goods and services produced in an economy over a given period of time. Geoff (2006) defined economic growth as a long-term expansion of the productive potential of the economy. Economic growth can be also referred to as increase in the capacity of an economy to produce goods and services, compared from one period of time to another (Bolton & Khaw, 2006).

Various authorities have advanced some theories on the accumulation of external reserves and its implication on economic growth. This study is limited

to Macroeconomic Theories and The Monetary Approach. Macroeconomic theory is based on the controversies of monetarist and fiscalist (Keynesian). The monetarist postulate that accumulation of reserves is as a result of the excess demand for the domestic currency and the growth of world trade. The Keynesians believes that accumulation of foreign reserves is to improve a country's current account and thereby positively impact on aggregate input. This impact is in the short run and will affect nominal exchange rates. However, Fukuda and Kon (2010) is of the opinion on that real exchange rates are used to adjust the equilibrium in the balance of payment at long run. The Monetary approach takes into account the rate of money supply in exercising influence over other macroeconomic aggregates. The term affects the movement of external resources flows and foreign reserves. It believes that inflow and outflow of foreign exchange associated with surpluses and deficits in the balance of payments are not immediately sterilized and this affects the supply of money in the economy Umeora (2013). The approach is based on the exchange rate assumption that when the exchange rate is fixed, the monetary authorities can then control foreign exchange reserves through monetary policies. As monetary policies excerpts pressure on domestic monetary supply and credit, foreign reserves should be adequate to protect and assumed foreign exchange rate. Therefore, the need to keep reserve in a floating exchange rate is emphasized. Nzotta (2004) stated that foreign reserves are not emphasized to stabilize exchange rate but to meet the random disturbance in the resource flows of a nation in a deregulated foreign exchange system.

Empirically, Osabuohien and Egwuakhe (2008) applied regression model technique to ascertain the relationship between external reserves and Nigeria economy between 1994 and 2005. Data was collected from CBN Statistical Bulletin using external reserve as control variable and export, import and gross domestic product as explanatory variables. The result shows that external reserve was in excess for the three months bench mark of import. It also shows a positive but insignificant relationship between external reserves and exports during the time of the study. The study suggested that to improve macroeconomic performance, domestic production is needed more than external reserve accumulation.

Alasan and Sharb (2011) examined the management of external reserves and economic development in Nigeria between 1980 to 2018 using time series data from CBN Statistical Bulletin 2007, 2008, 2009 and 2010. Ordinary least square were used to analyse the data. External reserve was used as control variable while oil export, non-export oil, capital goods, non-capital goods, political stability and gross domestic product were used as explanatory variables. The study revealed a positive relationship between external reserve and gross domestic product oil-export and capital goods while non-oil export, non-capital goods, non-import political and macroeconomic stability has negative relationship with external reserve. The study recommends that appropriate measures should be taken to promote the growth rate of the explanatory variables that have positive relationships with external reserves.

Anyaogu (2012) applied Vector Autoregressive model to investigate the relationship between external reserves and economic growth in Nigeria for 29 years (1980-2009). Data was sourced from Central Bank of Nigeria Statistical Bulletin. The study used inflation, exchange rate and trade openness as independent variables and external reserves as dependent variables. The result shows that the level of GDP and level of trade openness has positive effect on external reserves in Nigeria while foreign capital inflow and inflation has a negative impact on economic growth in Nigeria during the time of the study. However, the study is of the opinion that accumulation of foreign reserves does not give satisfactory returns for Nigeria. It was recommended that policies markers should endeavour to make policies that will focus on the enhancement of the internal economy and also stabilize the economy.

Using panel of annual data for five WAMZ Isaac (2014) studies the effect of international reserves accumulation on economic growth and whether there is threshold effect between international reserves and economic growth during 1984-2009. Data was sourced from World Bank's world development indicators and IMF international financial statistics. Real gross domestic product was used as a control variable while the explanatory variables includes, import, export, FDI. Applying augmented neoclassical Solow-Swan model and locally weighted scatter plot smoothing (LOWESS). The study finds that there exist a threshold effects relationship between international reserves and economic growth for the period of the study. The study also establishes a U-shape relationship between economic growth and international reserves. The study recommends the use of international accumulated reserve as a tool to promote economic growth in the West African Monetary Zone. Also, appropriate policy should be put in place by the policy makers that will increase the level of reserve holdings in the WAMZ.

In a study conducted by Udo and Antai (2014) to examine the impact of external reserves on the

Nigerian economy. Descriptive and econometric model were used to analyse data sourced from the World Bank statistical fact sheet and CBN statistical bulletin. Gross domestic product were used as dependent variables while private consumption, international trade, government expenditure and domestic investment were used as independent variable. Their result shows that external reserves have negative impact on domestic investment and productivity in Nigeria.

Kashif (2016) investigate the linear and nonlinear causality test between international reserves and economic growth in Nigeria. The study used quarterly data from IMF's international financial statistics and world development indicators of the World Bank from 1985-2014. Real gross domestic product was used as control variable while international reserves is used as explanatory variables. The study finds that there is a bidirectional causality between international reserve and economic growth in Nigeria which could be as a result of structural breaks caused by financial crisis. However, the nonlinear causality result shows unidirectional result between international reserve and economic growth. The study therefore, recommends that Nigeria government should be very careful in implementing their monetary policies which must be have economic value.

Sulaiman, Adedamola and Adelog (2016) used ordinary least square (OLS) and co-integration techniques to empirically investigate the effect of balance of payment changes and external reserves on Nigeria economic growth covering the period of 1970-2011. The data was sourced from CBN statistical bulletin. Balance of payment, exchange rate, inflation and external reserves was used as explanatory variables while Gross Domestic Product was used as independent variables. The study found that inflation is significant at 5% to economic growth in Nigeria while balance of payment and exchange rate is insignificant. It was recommended that exports should be encouraged in order to earn foreign exchange earnings which will increase external and reduce balance of payment deficits. Reduce over dependence on oil for foreign earning.

Akinwumi and Adekoya (2016) examines the effects of Nigerian external reserves management on the economic growth from the period ranging from 1985 to 2013. They used exchange rate, monetary rate, inflation rate gross domestic product and foreign direct investment as explanatory variable and external reserve as control variable. They used ordinary least square method in attempt to unravel the relationship between external reserves and selected macroeconomic variables and find that external reserves management was positively and significantly related to foreign direct investment, economic growth and monetary policy rate but has negative and insignificant relationship with inflation and exchange rate. The study recommends that government should implement good policies that will increase the relationship of the country with foreign investors which will in turn bring foreign investment into the country.

Akaninyene (2016) investigates the long run relationship between foreign reserve accumulation and macroeconomic environment in Nigeria between 1986 and 2014. Data was sourced from Central Bank Statistical Bulletin and Ordinary Least Square econometric model was used to model the exact relationship. The explanatory variables include inflation rate GDP, exchange rate, unemployment rate, investment rate and external debt and foreign reserve while the control variables is external reserve. The result shows a long run relationship between external reserve and the explanatory variables. The study also finds that foreign reserve is very important in the macroeconomic stability of aa country and recommends that government should adopt proper policies and strategies in managing the activities of its reserves.

In another development, ThankGod and Francis (2016) examined external reserve management and economic growth in Nigeria using Ordinary Square method and time series data for 34 years from central bank statistical bulletin. The dependent variables used was real gross domestic product while independent variables were external reserve and exchange rate. The study finds that real domestic product and external reserve and negatively related in the short run but significant in the long run. Also, it was revealed that Nigeria external reserve harvest support economic growth in the past years.

Akinboyo (2016) used modified Wald statistic of Toda and Yamamoto to examine the relationship between Nigerian foreign reserves and economic growth from 2000^{Q1} to 2013^{Q2}. Time series data was sourced from the central bank of Nigeria statistical bulletin. They found that there is a long run relationship between external reserves and economic growth with a structural break in 2009Q4. It was also observed that one percent increase in external reserves leads to 0.15 percent increase in economic growth and that external reserve drive economic growth both in short and long run term. The study recommends CBN routine intervention by the CBN in the foreign exchange market to enhance its stability.

Mohammed, Sridharan and Thiyagaraajan (2017) used error correction mechanism model to investigate

the short and long run relationship between international reserves and economic growth of Brasil from 1980 to 2014 (35 years). International reserve were used as dependent vary able while economic growth were employed as independent variable. Time series data was collected from World Development Indicators of the World Bank. International reserves were used as dependent variable and economic growth for independent variable. The result shows that economic growth have positive result on international reserves in Brazil. Also, one percent increase in economic growth will lead to 0.16 percent increase in international reserve holding in Brazil. The study argued that the reason for large reserve in Brazil is as a result of foreign trade and economic growth.

Nwosa (2017) examined the direction of relationship between external reserves and economic growth in Nigeria from 1981-2014. OLS were used to analyse data which was sourced from CBN Statistical Bulletin. Thee dependent variables were real gross domestic product while capital stock, labour force, external reserve and exchange rate was used as independent variables. The result finds that external reserves has a positive-significant effect on economic growth during the period of the study. The study recommends good management of the Nigeria external reserved so as to ensure more growth in the economy.

Awoderu, Ochalibe and Hephziba (2017) made use of multiple linear regression analysis to study the implication of long run relationship between external reserves and economic growth in Nigeria between 1980 and 2014. Data was sourced from CBN Statistical Bulletin real gross domestic product was used as dependent variables and exchange rate, export and import we used as independent variables. Their result shows that there is positive, significant and long run relationship between gross domestic product and external reserves.

Egbulonu and Akamike (2018) studied external reserve management and the Nigerian economy using time series data from 11990 to 2015. The study used gross domestic product as dependent variables while inflation, exchange rate and external reserve were used as independent variables. Data was collected from the CBN Statistical Bulletin, 2016 edition. They used ARDL bounds test approach to test the long run relationship between external reserve debt and economic growth in Nigeria. A pre-test was also carried out to check for the stationarity of the data. It was found that external reserve has a positive but not significant impact on Nigerian economic growth both in short and long run. Also exchange rate has a negative but not significant effect relationship with economic growth in the long run while inflation decreases economic growth both in the long and short run as at when the research was conducted. The implication of the findings shows that Nigerian external reserves has been fluctuating during the cause of this study and it was recommended that Nigerian government should manage their reserve very well by investing some of the excess reserve in foreign financial instrument that will have high yield.

Nwafor (2017) applied ordinary least square econometric technique to assess how external reserve can be a solution to economic growth in Nigeria. Time series data from 2004 to 2015 were sourced from CBN statistical bulletin 20133. Gross domestic product were used as dependent variables while external reserves were used as independent variables. After due consideration, it was revealed that external reserves have no positive significant impact on economic growth and exchange rate in Nigeria during the cause of the study. Other findings includes decline in external reserve within the time of the study which was caused by 2007 and 2008 global financial crisis and also government non-challant attitude towards accumulation of external reserves. The study therefore, recommends that country manage their reserve properly in order to achieve its aim of accumulating excess reserves.

Johnny & Johnny-Walker (2018) studied the relationship between external reserves and economic growth in Nigeria using time series date for 36 years. They used real gross domestic product market capitalization and agricultural output as explanatory variables and external reserves as explained variables. Data was sourced from CBN statistical bulletin and the study employed unit root test, co-integration test, ordinary least square and granger causality test to examined the exact relationship. Their result amongst others revealed that external reserve, gross domestic product and market capitalization in Nigeria are positively and significantly related while external reserves and agricultural output in Nigeria are negatively and insignificantly related.

Adegboyo, Efuntade and Efuntade (2019) examined the relationship between external reserve and trade in Nigeria for the period 1981 to 2017. The study employed ARDL Bound test method of econometric technique to test for both long run and short run relationship. Granger causality test was also use to test for the causal relationship based on the regression estimate. Exchange rate was as explanatory variables while external reserves trade (oil and non-oil export, oil and non-oil import) were used as independent variables. The study showed that exchange rate oil

export and non-oil export had positive and significant impact on external reserve while oil import and non-oil import had negative impact on external reserve. Alternatively, the granger causality test revealed exchange rate, non-oil export, oil export and oil import has unidirectional causal relationship between non-oil import and external reserves. Also, there is bi-directional relationship between non-oil import and external reserves. However, since both oil and non-oil export contribute to external reserve positively, any fluctuation in oil export will have adverse effect on external reserve. The study therefore recommend that more effort should be put into the non-oil export that is relatively stable for the country to have a huge and stability external reserve.

Uwem, Victoria and Udeme (2020) used an autoregressive distributed lag and bounds test to verify the existence of long-run relationship between foreign exchange reserves and economic growth in Nigeria between 1988 and 2016. Data used were extracted from the CBN Statistical Bulletin 2017. GDP was as dependent variables while foreign exchange reserves, exchange rate, inflation rate and foreign direct investment was employed as independent variables. It was found that all variables except FDI yielded positive and significant relationship with GDP in the long-run. FDI yielded a positive yet insignificant relationship with GDP. The result revealed that Nigerian GDP is significantly and positively influenced by FER, EXR and IFR but not influenced by FDI in the long-run as at which the research was conducted. The negatively relationship of FDI is as a result of fluctuation in foreign direct investment due to insurgency and poor government economic policies. The study recommends that Nigerian government should control the social vices and create an enabling environment for the inflow of foreign direct investment. Government should invest more domestically especially in SMSs, productive sectors and aid infant industries so as to increase the level of domestic out puts for exportation that will generate more income and employment opportunities as excess idle cash or reserve will not generate interest or impact positive on economic growth. Government should take note of the effect of exchange rate fluctuation because it could lead to high prices which could cripple economic development if happened.

Ojiako (2020) used Autoregressive distributed-lag (ARDL) and error correction models to analyse the short and long run relationship between stock of foreign reserve and economic performance in Nigeria for a period of 38 years (1981-2018). Time series data were collected from various CBN Statistical Bulletin. Gross domestic product was used as a control variable while external reserves was used as explanatory variable. The ARDL result shows that positive and significant relationship exist between GDP and the explanatory variable. The study concluded that there is a long-run relationship between stock of foreign reserves and economic performance in Nigeria. He further explained that foreign direct investment is attracted by a well booming economy. He recommends that government should create an enabling environment that is capable of boosting the foreign investors' confidence in the Nigerian economy.

Elijah (2020) model the use of Augmented Dickey-Fuller unit root, Philip Perron unit root, autoregressive distributed lag and granger causality techniques to investigate the connection between external reserves and economic growth in Nigeria for the period of 32 years (1986-2018). Data were sourced from Central Bank Statistical Bulletin (2018). Real gross domestic product were used as dependent variables while external reserve, exchange rate, trade openness and inflation rate were used as independent variables. The result from ARDL test shows that economic growth is positively influenced by external reserved and exchange rate while trade openness and inflation rate shows negative effect on economic growth. The causality test shows a bidirectional causality between externals reserve and economic growth in Nigeria. This indicates that managing and holding reserves will enhance liquidity position of a nation, prevent exchange rate instability serve as a cushion during economic crisis and provision of resources for long term infrastructural facilities for investment.

Using panels of annual data for 34 years (1985-2019) Suoye and Josaphat (2021) studied the relationship between the management of external reserves and economic growth. Real gross domestic product was used as dependent while external reserves rate, exchange rate and export were used to explanatory variables. Data was sourced from CBN statistical bulletin. They adopt Augmented Dickey-Fuller and Ordinary Lest Squares to analyse the data. Their empirical result shows that total export rate has a positive and significant relationship with economic growth rate while external reserves rate and exchange rate has positive and non-significant relationship with economic growth rate for the period covered. They further explained that exchange rate has higher risk factor than other macroeconomic variables as it exposes the Nigerian Naira to devaluation.

3. METHODOLOGY

The ex-post facto research design was employed for this study. This method is suitable for the data I from

event on Gross Domestic product growth rate and variables of external reserved that has occurred and documented by a reliable institution. Sohil (2019) defined Ex-post facto research as a type of study in which the independent variable or variables have already occurred and in which the researcher starts with the observation of dependent variables. The source of data used in this research were mainly secondary data. These sources are Central Bank of Nigeria statistical bulletin and the World Bank Development Indicators. The time frame covered is 35 years spanning 1987 to 2021. This period accounts for the deregulated era in Nigeria economy where the market forces are the drivers of economic indices.

An empirical model has been developed to capture the effects of explanatory variables and the dependent variable. More specifically, this study adopted the empirical model used by Elijah (2020). The model was stated thus,

RGDP =f(EXR, EXCH, TOP, INF (1)

$LRGDP_1 = \beta_0 + \beta_1 LEXTR_t + \beta_2 LEXH_t + \beta_3 TOP_t + \beta_4 INF_t + \beta_5 Ce_t + \mu_t$ (2)

Where;
RGDP = Real Gross Domestic Product Growth Rate.
EXR = External Reserve
EXCH = Exchange Rate
TOP = Trade Openness
INF = Inflation rate
β_0 = Constant Term
β_1 -β_4 parameters
Co = error term
L = logarithm from the variables

The basic model was modified to achieve the specific objectives of the study by using multiple regression equation approach. In line with the objectives of the study, the models are specified as follows;

GDPr= f(EXRS, CAP, CUR, Cor)

Where:
NER = external reserve stock
CAP = capital account
CUR = Current account
Cor = Cost of holding external reserve expressed as the US interest rate

While the log function of the above model is written as

$GDPr = \beta_o + \beta_1 EXRS + \beta_2 CAP + \beta_3 CUR + \beta_4 Cor + Ut$

βo	=	Intercept
β_1	=	Coefficient of external reserve stock
β_2	=	Coefficient of capital account
β_3	=	Coefficient of current account
β_4	=	Coefficient of cost of holding reserves
μ	=	Stochastic disturbance or error term

4. ANALYSIS AND DISCUSSION OF FINDINGS

The statistics employed for descriptive analysis are the mean and standard deviation. The results for the mean and standard deviation were shown on Table 1. The mean shows an average growth rate of the Nigerian GDP at 4.62%. This means that the economy grows by 4.6% annually when all things are taken equal. This is below the standard deviation which implies that the GDP growth in Nigeria is sporadic and means to maintain a normal distribution behaviour. The annual external reserve stock (EXRS), capital account balance (CAP) and current account balance (CUR) as ratio of GDP have mean of 2.71, -35.68 and 35.37 with standard deviations of 2.84, 42.81 and 57.34 respectively. The wide nature of the gap between the various mean and their corresponding standard deviations suggest high level of irregularity in the maintained external reserve data over the years. The cost of reserve represented with US real interest rate has a mean of 3.79% which is relatively lower than the standard deviation of 2.07%. This suggest a relatively predictable economic implication of external reserve.

Table 1: Descriptive Statistics of the Dependent Variables for the Study

	GDPR	EXRS	CAP	CUR	COR
Mean	4.622571	2.705714	-35.68686	34.37926	3.789429
Std. Dev.	3.875537	4.843728	42.81103	57.34123	2.075977
Jarque-Bera	1.151751	134.1065	1.836878	6.423924	1.390214
Probability	0.562213	0.000000	0.399142	0.040278	0.499021
Observations	35	35	35	35	35

The general assumption is that time series data have unit roots. This implies that they are usually not stationary over time and this distorts time periods for which regression analysis can be performed for the data. The test of stationary was done to determine the stochastic behaviour of the variables for the study. The Augmented Dicker Fuller (ADF) test for unit root was employed. The outcome was used to determine the suitable tool of regression analysis for the study. The results are shown on Table 2. The results are based on computed ADF t-statistics and the corresponding probability value (p.value). The decision rule is to reject the null hypothesis that: there is a unit root (not stationary) when the p.value is less than 0.05 level of significance; and to accept on the otherwise.

When the null hypothesis is rejected, it can then be concluded that the variable is stationary and therefore reliable for performing time series analyses. From the results on Table 2, the variables for GDPr, EXRS and CAP are stationary at level [1(0)]. The variables for CUR and Cor were not stationary at level but became stationary in their first differences {1(1)}. The model for the study therefore had variables for 1(0) and 1(1) stationarity status. Thus, the ARDL is the most suitable tool of regression analysis for the study.

Table 2: Augmented Dickey Fuller unit root test

Variables	At Level		1st Difference		Remarks
	Statistics	P.Value	Statistics	P.Value	
GDPr	-3.255335	0.0253	-	-	1(0)
EXRS	-8.175275	0.0000	-	-	1(0)
CAP	-3.975702	0.0042	-	-	1(0)
CUR	-2.027796	0.2741	-6.650950	0.0000	1(1)
Cor	-1.556542	0.4930	-3.218655	0.0278	1(1)

*significant at 1%; **significant at 5%.

Source: Authors computation from E-views 9.0

Estimation of Short Run Effect of External Reserves on Economic Growth

The result on Table 3 explains the short run dynamism in external reserve and economic growth nexus in Nigeria. The coefficient of determination and F-statistics explains the overall effect of the model while the coefficients of regression and the corresponding t-statistics is used to capture the effect of the individual variables at various short run periods, on economic growth in Nigeria.

Table 3: Estimation of Short Run Effect of External Reserves on Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDPR(-1)	**0.440180**	**0.152747**	**2.881767**	**0.0108**
GDPR(-2)	0.072092	0.187919	0.383632	0.7063
GDPR(-3)	**-0.355688**	**0.158186**	**-2.248548**	**0.0390**
EXRS	-0.989612	0.993831	-0.995755	0.3342
EXRS(-1)	0.362554	0.727201	0.498561	0.6249
EXRS(-2)	**1.664305**	**0.372720**	**4.465299**	**0.0004**
EXRS(-3)	**-1.026821**	**0.492631**	**-2.084359**	**0.0435**
CAP	0.035423	0.018479	1.916944	0.0733
CUR	**0.038117**	**0.016476**	**2.313457**	**0.0343**
CUR(-1)	0.010293	0.012469	0.825455	0.4213
CUR(-2)	0.017658	0.012957	1.362813	0.1918
CUR(-3)	-0.016445	0.010153	-1.619698	0.1248
COR	-0.085355	0.447847	-0.190590	0.8512
COR(-1)	-1.396919	0.765545	-1.824739	0.0868
COR(-2)	**1.772796**	**0.521085**	**3.402122**	**0.0036**
C	1.974187	1.484369	1.329984	0.2022
R-squared	0.848633			
Adjusted R-squared	0.706727			
F-statistic	5.980236	Durbin-Watson stat		2.059831
Prob(F-statistic)	0.000481			

The Cumulative Effect

The result of the coefficient of determination (R^2) is 0.8486and the adjusted R^2 value is 0.7067. This indicates the model has at least 71% explanatory power. This implies that about 71% of the changes in economic growth in Nigeria can be explained by variations in external reserve variables (external reserve stock, capital account balances, current account balances, and cost of reserve).The F-statistic value of 5.9802 with a probability value of 0.0004 which is less than 0.05 level of significance, is thus statistically significant. This indicates that external reserve variables have joint significant effect on economic growth in Nigeria.

Endogenous Effect

The coefficient of GDPr included as endogenous variable showed three lagged periods. The coefficients for lags 1, 2 and 3 are 0.4402, 0.07209, and -0.3557 which signifies that previous year GDPr are positive in the lags 1 and 2 but negative at lag 3.

The p-values show are less than 0.05 in lag 1 but above 0.05 at lag 2 and 3.This means that GDPr has a statistical significant positive effect on itself at lag 1 but no effects at lags 2 and 3. This implies that GDPr is an endogenous variables in the short run model for external reserve and economic growth nexus.

Individual Short run Effects

External Reserve Stock (EXRS): The coefficient of external reserve stock showed negative relationships at initial period, and lag 3 with values of -0.9896 and -1.0268 respectively. The coefficients for lag 1 (0.3625) and lag 2 (1.6643) showed positive relationships between external reserve stock and economic growth in Nigeria. However, p-values revealed that the lags 2 and 3 are less than 0.05 level of significance. This means that external reserve stock has an oscillatory short run significant effects on economic growth in Nigeria with was positive at lag 2 period and then negative in subsequent lag 3 year.

Capital Account Balance (CAP): The coefficient of capital account balances had only one period on the result. The statistics showed a positive relationship between capital account balance and economic growth in initial period (0.0354). The t-statistic (1.916944) has a corresponding p-value (0.0733) that is greater than 0.05 level of significance. This indicates that capital account balance has no significant effects on economic growth in Nigeria within the period under study.

Current Account Balance (CUR): The coefficient showed that there a positive relationship between current account balances and economic growth in the initial period (**0.0381**), lag 1 (0.0102), and lag 2 (0.01765), but negative relationship in lags 3 (-0.0164). The t-statistic and corresponding p-values showed that significant negative effects in most of the periods (initial, lags 1, and 4). The t-statistics and the corresponding p-values for the initial period is 2.313457 (p. 0.0343) which is less than 0.05 level of significance. Other periods showed values greater than 0.05 level of significance. This indicates that current account balances has significant effect on economic growth in the initial period but no effect in subsequent years.

Cost of Reserve (Cor): The coefficient of the cost of reserve were negative in the initial period (-0.0853) and lag 1 (-1.3969) but positive in period lags 2 (1.7728). The t-statistics and the corresponding p-values for initial period and lag 1 are -0.190590 (0.8512) and -1.824739 (0.0868), which were above the bench mark of 0.05 level of significance. The results showed a significant positive effects in lag. This implies that cot of reserve (COR) has significant positive effect on economic growth in Nigeria.

Discussion of Findings

The findings from this study have shown that external reserves do not have significant long run effect on economic growth in Nigeria. This means that the external reserves of Nigeria cannot be used for long run planning of national prosperity. This was supported by the huge fall in explanatory power of aggregate model of external reserve and economic growth nexus. This reports that only 71% of changes in economic growth can be captured by the ARDL short run model of the study. This falls short of the expectation that external reserve is a strong dominant of country's competitiveness and hence driver of payment settlements that impinge economic growth in an open economy as Nigeria. Further, the results on the specific objectives of the study revealed that external reserve stock, current account balance and cost of holding reserves have significant effect on economic growth in Nigeria. The results showed that current account balance and cost of holding reserve had positive and short run effect; whereas external reserve stock begins with a positive effect that eventually snowball into negative effect in subsequent years. The result of the current account balance implies that increase in international transactions between Nigeria and other countries of the world boost economic growth of the country. Thus, the higher the value and volume of international trade, the higher the economic growth of Nigeria. However, economic growth of Nigeria also rises with a rising cost of holding reserves. This suggests that currency risk influences economic growth of Nigeria. A rising US interest rate triggers the growth of Nigeria economy. The fluctuating nature of the relationship between external reserve stock and economic growth in Nigeria indicates the need for consistent review of external reserves as is the case of monetary policies of every nation. However, the result shows that it is only capital account balances that do not have effect on economic growth. This connotes that import dependency of the Nigerian economy does not impinge on her economic growth. Hence, it is not consequential on whether Nigeria is a net importer or exporter to influence her gross domestic product and annual growth rates.

5. CONCLUSION AND POLICY IMPLICATIONS

This study has shown that external reserves has not been an effective driver of Nigerian economic growth within the deregulated economy era. It was seen that external reserves have no long-run effect on economic growth and could not explain about 29% of growth factors in Nigeria. In the short run, external reserve indicator such as external reserve stock, current account balance and cost of holding reserves

significantly impact economic growth. Based on the findings of the study, the following recommendations have been preferred. Government should increase her external reserve stock to enhance the growth of Nigerian economy, by increasing the export through diversification and exploration of new markets for Nigerian export products. This is expedient as adequate and larger stock of external reserves is expected to ensure stability and economic confidence necessary to withstand shocks and drive growth. The capital account balance which accounts for all the transactions that alter the external asset and or liabilities of Nigeria do not have effect on economic growth. It is thus recommended that balance of payment on such items should be given less regulation to drive Nigeria economy. Activities of the international trade involving the current account should be placed on restrict regulation to cushion its effect on the nation's external reserve and economic growth. Since cost of savings is one of the necessary ingredients of capital formation, cost of external reserve which shows significant and positive effect on growth in Nigeria should be factored into the government external reserve policies. Government should diversify her investment channels for external asset.

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